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CHOATE, HALL & STEWART LLP TWO INTERNATIONAL PLACE BOSTON, MA 02110			EXAMINER HUYNH, PHUONG N	
			ART UNIT 1644	PAPER NUMBER
			NOTIFICATION DATE 03/02/2011	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@choate.com  
jhess@choate.com  
vlamberg@choate.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/728,323	<b>Applicant(s)</b> CAPLAN ET AL.	
	<b>Examiner</b> PHUONG HUYNH	<b>Art Unit</b> 1644	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12/14/10.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 34-38 and 41-49 is/are pending in the application.
- 4a) Of the above claim(s) 37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 34-36, 38 and 41-49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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### **DETAILED ACTION**

Claims 34-38 and 41-49 are pending.

Claim 37 is withdrawn from further consideration by the examiner, 37 C.F.R. 1.142(b) as being drawn to a non-elected invention.

Claims 34-36, 38 and 41-49, drawn to a composition comprising dead E coli comprising allergen protein, are being acted upon in this Office Action.

### **Priority**

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed application, Application No. 09/731,375 and provisional application 60/195,035, fail to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application.

The claimed invention is drawn to a composition comprising: dead E. coli having encapsulated therein a recombinant version of an allergen protein wherein the allergen protein is any one of the allergens recited in claim 1 and a pharmaceutical acceptable carrier wherein the composition being formulated for rectal, vaginal, nasal, oral, buccal or mucosal delivery.

The filing date of instant claims 34-38, 41-49 is deemed to be the filing date of divisional application 09/731,375, which is December 6, 2000. This is because the provisional application 60/195,035, which filed April 6, 2000 does not provide enablement support for a composition formulated

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for rectal, vaginal, nasal, oral, buccal or mucosal delivery comprising any one of the allergen from the laundry list of allergens recited in claim 1, including Ara h1, Ara h2 and Ara h3.

### **Specification**

The objection to the disclosure is withdrawn in view of the amendment filed December 14, 2010.

### **Rejection Withdrawn**

The enablement and written description rejections of claims 34-36 and 38-49 under 35 U.S.C. 112, first paragraph, are withdrawn in view of the claims amendment filed December 14, 2010.

The provisional rejection of Claims 34-36 and 38-49 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 34-45 of copending Application No. 10/728,051 is moot in view of the abandonment to copending application.

The rejection of claims 34-36, 38-40, 43-44 and 48-49 under 35 U.S.C. 103(a) as being unpatentable over US application 2005/0175630 A1 (newly cited, claimed earliest priority to 60/532,786, filed Dec 23, 2003; PTO 892) in view of US Pat No 6,187,311 (newly cited, September 26, 1997; PTO 892) and WO 97/24139 (newly cited, published October 1997; PTO 1449) or Rabjohn et al (of record, J Clin Invest 103(4): 535-542, Feb 1999; PTO 1449) is withdrawn in view of the claims amendment filed December 14, 2010.

The rejection of claims 45 and 47 under 35 U.S.C. 103(a) as being unpatentable over US application 2005/0175630 A1 (newly cited, claimed earliest priority to 60/532,786, filed Dec 23, 2003; PTO 892) in view of US Pat No 6,187,311 (newly cited, September 26, 1997; PTO 892) and WO

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97/24139 publication (published October 1997; PTO 1449) or Rabjohn et al (of record, J Clin Invest 103(4): 535-542, Feb 1999; PTO 1449) as applied to claims 34-36, 38-40, 43-44 and 48-49 mentioned above and further in view of US Pat No 6,004,815 (newly cited, issued December 21, 1999; PTO 892) is withdrawn in view of the claims amendment filed December 14, 2010.

The rejection of claim 42 under 35 U.S.C. 103(a) as being unpatentable over US application 2005/0175630 A1 (newly cited, claimed earliest priority to 60/532,786, filed Dec 23, 2003; PTO 892) in view of US Pat No 6,187,311 (newly cited, September 26, 1997; PTO 892) and WO 97/24139 publication (newly cited, published ; PTO 892) or Rabjohn et al (of record, J Clin Invest 103(4): 535-542, Feb 1999; PTO 1449) as applied to claims 34-36, 38-40, 43-44 and 48-49 mentioned above and further in view of Leclerc et al (of record; J Immunology 144(8): 3174-3182, 1990; PTO 892) is withdrawn in view of the claims amendment filed December 14, 2010.

The provisional rejection of claims 34-36 and 38-49 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 34-45 of copending Application No. 12/843,739 is withdrawn in view of the claims amendment filed December 14, 2010.

New ground of objection and rejection are necessitated by the amendment filed December 14, 2010.

Claim 34 is objected to because of the typographical error "Can f?" at page 7 of the claim amendment.

Claims 35-36 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 38 is objected to under 37 CFR 1.821(e) for failure to supply a correct sequence identifier to all disclosed sequences. In particular, SEQ ID NO: 2 in claim 38 is an amino acid sequence in the computer

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readable form of the "Sequence Listing". However, the claim recites nucleotide sequence of ...SEQ ID

NO: 2. Applicants must check all sequences in the claims, the specification, the paper copy of the "Sequence Listing" and the computer readable form of the "Sequence Listing". All sequences must be the same. Correction is required.

### **Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 35-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "found in nature in foods, venoms, or latex" in claim 35 has no antecedent basis in base claim 34 because the words "foods, venoms, or latex" are not recited in claim 34. Further, the allergen protein in dead E coli is recombinant protein, not allergen protein found in nature. Finally, the dependent claim 35 fails to further limit the subject matter of a previous claim. For example, bee venom found in nature contains many different proteins such as phospholipase, hyaluronidase, melittin and others.

The phrase "found in nature in milk, eggs, seafood, nuts, dairy products and fruit" in claim 36 has no antecedent basis in base claim 34 because the words "milk, eggs, seafood, nuts, dairy products and fruit" are not recited in claim 34. Further, the allergen protein in dead E coli is recombinant protein, not allergen protein found in nature. Finally, the dependent claim 36 fails to further limit the subject matter of a previous claim. Claim 37 has the same problem although claim 37 is not under examination.

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 34, 38, 41-43 and 45-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 5,888,799 (newly cited, issued March 30, 1999; PTO 892) in view of US Pat No 6,004,815 (newly cited, issued December 21, 1999; PTO 892), WO 97/24139 publication (of record) as evidenced by Hoffman et al (newly cited, Immunochemistry 12(6-7): 535-8, 1975; PTO 892) and Eidelman et al (newly cited, Am Review of Respiratory Disease 137(5): 1033-1037, 1988; PTO 892).

The '799 patent teaches a composition comprising live E coli having encapsulated therein a recombinant antigen or allergen protein such as animal dander or pollen wherein the E coli is used as microbial delivery vehicle for treating allergy by induction of tolerance (see entire document, col. 9, lines 59 bridging col. 10, lines 6, in particular). The reference composition is formulated for mucosal delivery such as nasal in the form of aerosols (see col.8, lines 60-67, in particular), vaginal (see col. 9, line 1-3, in particular) or oral administration (see col. 10, line 20-31, in particular). The allergen of interest is encapsulated in the periplasmic space (see col. 14, line 29-31, in particular) are administering to the subject and when the micro dies, it releases cytoplasmic and/or periplasmic antigen/allergen to antigen presenting cells (see col. 9, lines 3-40, col.10, lines 7-19, col. 9, lines 24-26, in particular).

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The '799 patent does not teach a composition comprising dead E coli as a microbial delivery vehicle and the recombinant allergen is peanut allergen protein Ara h1 and Ara h2.

However, the '815 patent teaches a composition formulated for mucosal delivery by ways of oral or nasal administration (see col. 5, lines 24-43 through col. 6, line 12, in particular); the reference composition comprises dead E coli having encapsulated therein a recombinant chicken ovalbumin (known laboratory allergen) as a delivery vehicle to deliver any antigen of interest to antigen presenting cells (see entire document, abstract, col. 4, lines 26-45, in particular). The reference nonviable E coli has produced non-secreted protein allergen such as chicken ovalbumin (OVA) in the cytoplasm (see col. 11, line 31-34, in particular) or a portion of chicken ovalbumin (OVA) such as peptide SIINFEKL (SEQ ID NO: 6) to delivery OVA to the MHC class I pathway for antigen processing and presentation (see col. 8, line 35-39, col. 11, line 29-35, claims 9-17, in particular). A wide variety of suitable means for killing or rendering the bacteria dead are known in the art, including chemical fixation with organic solvent such as methanol (alcohol), UV irradiation, heat, freeze-drying, etc (see col. 4, line 39-47, in particular). The reference protein is encapsulated with in the E Coli until process within the phagosomes of antigen presenting cell such as macrophage (see col. 12, line 11-14, in particular). The advantages of using dead microorganisms such as E coli as a delivery system are that (1) no prior purification of protein is required, (2) high levels of protein can be delivered to the cytosol of macrophage (antigen presenting cells) via the MHC class I pathway to generate protective immune response and (3) the dead, non-viable bacteria eliminates the inherent risk of live pathogenic bacteria use in vivo (see col. 15, lines 24-57, col. 16, lines 29-40, in particular). Evidentiary reference Hoffman et al teach chicken ovalbumin is one of the food allergens and patient with food allergy has high serum level of antibody to chicken ovalbumin (see abstract, in particular). Evidentiary reference Eidelman et al teach chicken ovalbumin is one of the most frequent use allergen in laboratory (see abstract, in particular). The '815 patent does not teach allergen protein such as Ara h1 and Ara h2.

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However, the WO 97/24139 publication teaches various peanut allergen protein such as Ara h1 protein allergen encoded by nucleic acid sequence shown in Figure 16, which is identical to claimed SEQ ID NO: 1 (see entire document, Table 33 at page 169, page 167, sequence in Table 32, in particular), Ara h1 allergen protein comprises the amino acid sequence which is 100% identical to the claimed SEQ ID NO: 2 (see sequence in Figure 23B, in particular) and Ara h2 (see amino acid sequence in Figure 2, in particular). The WO 97/24139 publication further teaches various IgE epitopes within the full-length sequence of Ara h1 (see page 135, Table 22, Fig 23B, in particular). The WO 97/24139 publication further teaches various IgE epitopes within the full-length sequence of Ara h 2 (see Fig 30, Ara hII, in particular).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to produce a composition comprising recombinant peanut allergen protein Ara h1 or Ara h2 in the cytoplasm or periplasm of E coli as one choose and then render the bacteria dead by various means such as heat, chemical or UV irradiation to formulate for oral, nasal or vaginal administration of the '799 patent by substituting the ovalbumin in the E coli of the '815 patent for the Ara h1 or Ara h2 as taught by the WO 97/24139 publication or substituting the animal dander or pollen expressed in E coli of the '799 patent for the peanut protein allergen Ara h1 or Ara h2 as taught by the WO 97/24139 publication and then render the E coli dead by heat, UV irradiation or chemical for use as an intracellular delivery as taught by the '815 patent.

One having ordinary skill in the art would have been motivated with the expectation of success to use dead E coli that have produced protein allergen of interest in the cytoplasm or periplasm as a delivery vehicle because dead E coli eliminates the inherent risk of live bacteria in vivo as taught by the '815 patent (see col. 15, lines 24-57, col. 16, lines 29-40, in particular).

One having ordinary skill in the art would have been motivated with the expectation of success to use non-secreted E coli as allergen delivery system because no protein purification is required, and high

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levels of protein can be delivered to the cytosol of macrophage (antigen presenting cells) for MHC class I pathway antigen presentation to generate protective immune response as taught by the '815 patent (see col. 15, lines 24-57, col. 16, lines 29-40, in particular).

One having ordinary skill in the art would have been motivated with the expectation of success to use non-secreted E coli as allergen delivery system because it is common sense to shield the highly anaphylactic peanut allergen as taught by the WO 97/24139 publication from the immune system until it is engulfed by antigen presenting cells known to any one of ordinary skill in the immunology art.

One of having ordinary skill in the art would have been motivated to try to use dead E coli that have produced protein allergen encapsulated inside the bacteria as a delivery vehicle (carrier) so that anaphylactic food allergen would not be accessible to the immune system until the dead bacteria has been phagocytosed by antigen presenting cells so that the allergen is released within the phagosome to prevent any anaphylactic shock upon administering to the subject.

While the '799 patent teaches live E coli, the recitation of dead E coli is an obvious variation of the reference teachings. Killing and rendering the bacteria nonviable are known in the art at the time the invention was made, including fixation with organic solvent such as methanol, UV irradiation, heat, freeze-drying, etc as taught by the '815 patent (see col. 4, lines 41-45, in particular).

Given the examination guidelines for determining obviousness under 35 U.S.C. 103 in view of the Supreme Court decision in *KSR International Co. V. Teleflex Inc.* 82 USPQ2d 1385 (2007) and the Examination Guidelines set forth in the Federal Register (Vol. 72, No. 195, October 10, 2007) and incorporated recently into the MPEP (Revision 6, September 2007), the following rationales to support rejection under 35 U.S.C. 103(a) are noted:

- A) Combining prior art elements according known methods to yield predictable results.
- B) Simple substitution of one known element for another to obtain predictable results.
- C) Use of known technique to improve similar products in the same way.

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D) Applying known technique to a known product ready for improvement to yield predictable results.

E) "Obvious to try" --- choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success.

F) Some teachings, suggestion, or motivation in the prior art that would lead to one of ordinary skill to modify the prior art reference to arrive at the claimed invention.

In this case, combining prior art elements of peanut protein allergens and expression of such peanut protein allergens in E coli as inclusion bodies located in the cytoplasm or periplasm according known method would yield predictable results.

In this case, simple substitution of one known allergen for another allergen in the dead E coli would yield predictable results.

Since the use of dead E coli that have produced encapsulated antigen/allergen of interest as a delivery vehicle is desirable and have been predictable at the time the invention was made, there would have been reasonable expectation of success in combine the references teachings to arrive at the claimed invention. Obviousness is not the result of a rigid formula disassociated from the consideration of the facts of a case. Indeed, the common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not. See *KSR International Co. V. Teleflex Inc.* 82 USPQ2d 1385 (2007). From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention.

Claims 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 5,888,799 (newly cited, issued March 30, 1999; PTO 892) in view of US Pat No 6,004,815 (newly cited, issued December 21, 1999; PTO 892), WO 97/24139 publication (of record) as evidenced by Hoffman et al (newly cited, *Immunochemistry* 12(6-7): 535-8, 1975; PTO 892) and Eidelman et al (newly cited, *Am*

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Review of Respiratory Disease 137(5): 1033-1037, 1988; PTO 892) as applied to claims 34, 41-43 and 45-49 and further in view of WO 9934826 publication (published July 1999; PTO 892).

The combine teachings of the '799 patent, the '815 patent, the WO 97/24139 publication as evidenced by Hoffman et al and Eidelman et al have been discussed supra.

The invention in claim 35 differs from the teachings of the references only in that the composition wherein the allergen is found in nature in foods or latex.

The invention in claim 36 differs from the teachings of the references only in that the composition wherein the allergen is found in nature in peanuts.

The WO 9934826 publication teaches various allergen proteins such as dust mite *Dermatophagoides pteronyssinus* Der p1 through Der p7, see page 50-51, in particular), *Dermatophagoides farinae* Der f1 through Der f3 (see page 51-52, in particular), cat allergen *Felis Fel d1* (see page 53, in particular), latex allergen *Hevea* Hev b1, Hev b3 (see page 54, in particular), Rye grass allergen proteins such as *Lolium perenne* Lol p1, Lop p2, Lol p3, Lol p5, Lol p11 (see page 54-56, in particular), olive *Ole e1* (see page 57, in particular), Timothy grass allergen proteins such as *Phl p1*, *Phlp2*, *Phlp5* (see page 58-66, in particular), Wasp allergen protein such as *Ves v1*, *Ves M1*, *Ves V1* venom (see page 67-68, in particular), Birch tree allergen proteins such as *Bet v1* through *Bet v4* (see page 68-69, in particular), peanut allergen *Ara h1* which is 100% identical to claimed SEQ ID NO: 2 (see page 70-71, in particular), ragweed allergen proteins such as *Amb a1* through *Amb a2* (see page 71-72, in particular), cedar allergen proteins such as *Cry I*, *Cry II* (see page 73-75, in particular), dog allergen proteins such as *Canis f1*, *f2*, dog serum albumin (see page 75-76, in particular), horse allergen proteins such as *Equ c1* (see page 76, in particular), mite allergen proteins such as *Eur m1* (see page 77, in particular), *Poa* grass allergen proteins such as *Poa p9* (see page 78, in particular), Cockroach allergen proteins such as *Cr p1*, *Cr p2*, *Bla g2*, *Bla g4*, *Bla g5* (see pages 79-80, in particular) or any of protein allergens with accession number listed on pages 81-85. The reference allergen proteins are useful for

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treating allergic disease when taken up by antigen presenting cells such as dendritic cells (see page 20, last paragraph, page 21, in particular). The WO 9934826 publication further teaches composition formulated for oral, nasal or rectal administration (see page 35, first full paragraph, page 36, in particular). The rectal administration is in the form of suppository (see page 36, second paragraph, in particular). The reference allergens are applicable to any allergens such as grass, tree, weed, pollens, fungi, foods such as fish, shellfish, crab, lobster, peanuts, nuts, wheat gluten, eggs, and milk (see paragraph bridging pages 29 and 30, in particular).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to produce a composition comprising any recombinant allergen protein in the cytoplasm or periplasm of E coli as one choose and then render the bacteria dead by various means such as heat, chemical or UV irradiation to formulate for oral, nasal or vaginal administration of the '815 patent by substituting the ovalbumin in the E coli of the '815 patent or the animal dander or pollen expressed in E coli of the '799 patent for any one of the allergen protein as taught by the WO 9934826 publication.

One having ordinary skill in the art would have been motivated with the expectation of success to substitute one known allergen protein for another because the WO 99/34826 publication teaches allergens are applicable to any allergens such as grass, tree, weed, pollens, fungi, foods such as fish, shellfish, crab, lobster, peanuts, nuts, wheat gluten, eggs, milk (see paragraph bridging pages 29 and 30, in particular). In this case, simple substitution of one known allergen for another allergen in the dead E coli would yield predictable results.

One having ordinary skill in the art would have been motivated with the expectation of success to use dead E coli that have produced protein allergen of interest encapsulated therein as a delivery vehicle because dead E coli eliminates the inherent risk of live bacteria in vivo as taught by the '815 patent (see col. 15, lines 24-57, col. 16, lines 29-40, in particular).

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One having ordinary skill in the art would have been motivated with the expectation of success to use non-secreted E coli as allergen delivery system because no protein purification is required, and high levels of protein can be delivered to the cytosol of macrophage (antigen presenting cells) for MHC class I pathway antigen presentation to generate protective immune response as taught by the '815 patent (see col. 15, lines 24-57, col. 16, lines 29-40, in particular).

One having ordinary skill in the art would have been motivated with the expectation of success to use non-secreted E coli as allergen delivery system because it is common sense to shield the highly anaphylactic food allergen such as peanuts, tree nuts and shellfish from the immune system until it is engulfed by antigen presenting cells known to any one of ordinary skill in the immunology art.

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Huynh, Ph.D. whose telephone number is (571) 272-0846. The examiner can

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normally be reached Monday through Thursday from 9:00 a.m. to 6:30 p.m. and alternate Friday from 9:00 a.m. to 5:30 p.m. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The IFW official Fax number is (571) 273-8300.

Any information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Phuong Huynh/

Primary Examiner, Art Unit 1644